

S. F. P. Policy

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~~SECRET~~December 15th, 1959COCOM Document No. 3715.44/2BCOORDINATING COMMITTEERECORD OF DISCUSSIONONITEM 1544 - CRYSTAL SIGNAL DIODESDecember 2nd, 1959

Present: Belgium (Luxembourg), Canada, France, Germany, Italy, Japan, Netherlands, United Kingdom, United States.

References: COCOM Documents Nos. 3700.1, 3715.00/1, 3715.44/1 and W.P.1544/1 to 5.

1. The CHAIRMAN reminded the Committee that the new definition of Item 1544 had already been approved in principle by all delegations, and that the Committee had also agreed to study at the present meeting the proposal put forward by the Netherlands Delegation in W.P.1544/5 with the object of making the text shown in COCOM 3715.44/1 a little clearer.
2. The UNITED KINGDOM stated that his Delegation would take the opportunity afforded by the study of the Netherlands proposal to submit in their turn two editorial changes affecting parts (c)(1) and (c)(2) of the new definition:
 - (1) In part (c)(1), the United Kingdom Delegation proposed that the words "at 25°C and under any conditions of cooling" should be placed at the end of the sentence;
 - (2) In part (c)(2), in place of "Controlled diodes (i.e. those which operate similarly to gridcontrolled gas-filled tubes)", the United Kingdom Delegation would prefer the following wording: "Controlled diodes, i.e. semi-conductor multiple-junction devices for applications similar to those of gridcontrolled gas-filled tubes".

These two changes were accepted by all Delegations on the understanding that they were purely changes in form and not in substance.

3. The NETHERLANDS Delegate stated that his proposal affected sub-item (b) of the new definition and, more especially, parts (b)(3) and (b)(4). The Delegate explained that these parts covered two types of diodes, and that the text submitted by his Delegation was intended simply to make this distinction clearer.

4. The UNITED KINGDOM Delegate agreed with the Netherlands intention; he considered however that it would be preferable to keep the present wording of these parts, repeating after "or" the phrase "which are designed for" and adding both to part (3) and to part (4) a note reading: "This sub-item will normally include switching type diodes having a recovery time less than etc...." (see definition below).

5. The NETHERLANDS Delegate stated that he could accept the United Kingdom proposal.

6. The UNITED STATES Delegate would have preferred not to have this note inserted twice, but was able to agree ad referendum to the Netherlands and United Kingdom proposals.

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7. The NETHERLANDS Delegation also proposed the addition of the following note at the end of sub-item (b):

"The recovery time is to be specified for a decrease of reverse current to a value of 100 microamps or less and measured with a forward current and a reverse voltage which are typical for the diode in question."

8. The GERMAN Delegate considered that in this instance too it would be preferable to insert the note twice, that is, both after (b)(3) and after (b)(4), since it did not apply to the other parts of the sub-item.

9. The COMMITTEE agreed to the text of this note and also to the German suggestion.

10. The new definition of Item 1544 thus read as follows:

"Semiconductor diodes, including rectifier diodes and switching diodes, but excluding photodiodes, (see Item 1548) as follows:

- (a) Any semiconductor diode in which the bulk material is other than silicon, germanium, selenium or copper-oxide;
- (b) Signal diodes, (including mixer, frequency-changing and switching diodes):
 - (1) Point contact type diodes in which the bulk material is silicon and which are designed for use at input frequencies greater than 300 Mc/s;
 - (2) Point contact type diodes in which the bulk material is germanium and which are designed for use at input frequencies greater than 1,000 Mc/s;
 - (3) Junction type diodes in which the bulk material is silicon and which are designed for use at input frequencies greater than 1 Mc/s or which are designed for switching rates (repetition frequency) higher than 100 kc/s;

NOTE: This sub-item will normally include switching type diodes having a recovery time less than 2 microseconds. The recovery time is to be specified for a decrease of reverse current to a value of 100 microamps or less and measured with a forward current and a reverse voltage which are typical for the diode in question.

- (4) Junction type diodes in which the bulk material is germanium and which are designed for use at input frequencies greater than 300 Mc/s or which are designed for switching rates (repetition frequency) higher than 1 Mc/s;

NOTE: This sub-item will normally include switching type diodes having a recovery time of less than 0.2 microseconds. The recovery time is to be specified for a decrease of reverse current to a value of 100 microamps or less and measured with a forward current and a reverse voltage which are typical for the diode in question.

- (c) (1) Power diodes in which the rated peak inverse voltage exceeds 1,000 volts per junction at 25°C and under any conditions of cooling;
- (2) Controlled diodes, i.e. semi-conductor multiple-junction devices for applications similar to those of gridcontrolled gas-filling tubes, designed for use at switching rates (repetition frequency) higher than 100 kc/s.

CONCLUSION: The COMMITTEE agreed to adopt the definition of Item 1544 as set out above.

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